PERKINS CORNER BRIDGE
(Bridge No. 4622)
Flanders Road and Cider Mill Road,
spanning Willimantic River
Coventry
Tolland County
Connecticut

HAER No. CT-150

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Northeast Region
Philadelphia Support Office
U.S. Custom House
200 Chestnut Street
Philadelphia, P.A. 19106

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HISTORIC AMERICAN ENGINEERING RECORD
PERKINS CORNER BRIDGE
(Bridge No. 4622) **HAER No. CT-150**

Location:	Flanders Road and Cider Mill Road, spanning Willimantic River Coventry Tolland County, Connecticut USGS Columbia Quadrangle UTM Coordinates: 18.727620.4624130
Date of Construction:	1914
Fabricator: Contractor:	American Bridge Company United Construction Company
Present Owners:	Town of Coventry, Connecticut 1712 Main Street Coventry, CT 06238 Town of Mansfield, Connecticut 4 South Eagleville Road Storrs, CT 06268
Present Use:	Vehicular bridge
Significance:	The Perkins Corner Bridge is significant as a representative example of early 20th-century bridge engineering. The bridge's steel material, riveted connections, and Warren-truss design reflect the standardization in bridge engineering that had occurred by the turn of the century.
Project Information:	This documentation was undertaken in accordance with a Memorandum of Agreement between the Federal Highway Administration and the Connecticut State Historic Preservation Office. The bridge is scheduled for replacement.

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Description

Perkins Corner Bridge is a two-span steel pony-truss bridge built in 1914 across the Willimantic River in the towns of Coventry (west side) and Mansfield (east side), Connecticut. The surrounding area is mostly open fields, with the immediate vicinity of the bridge heavily wooded along the river banks. To the east is the single-track railroad right-of-way of the New England Central Railroad, and about .2 mile further, Cider Mill Road's intersection with State Route 32. The bridge measures 78 feet long overall, with the two spans each 35 feet long. The width of the bridge is 13 feet, providing a single lane for the roadway, which is known as Flanders Road in Coventry and Cider Mill Road in Mansfield. The bridge typically is about 10 feet above the level of the water in the Willimantic River.

The two three-panel Warren-type trusses are identical. Five feet in depth, the trusses are composed of relatively light components, as follows:

Top chord and end posts:	2 1/2" x 10" channels made up of plates and angles
Lower chord:	paired 2 1/2" x 2 1/2" angles with stay plates 3 feet on center
End diagonals:	paired 2 1/2" x 2" angles joined by stay plates at ends and center
Center diagonals:	2 1/2" x 10" lattice girders (single lacing)
Verticals:	2 1/2" x 10" lattice girders (single lacing)

The concrete-slab roadway is carried by a floor system consisting of 12" x 5" I-section floor beams, on top of which run six 9" stringers: four I-beams and two channels for the outside stringers. The floor beams are hung from the lower joints by angles connected to the beams' webs, with the top flanges of the floor beams partially cut away. The bridge has tension-rod cross-bracing between the floor beams.

There are no sidewalks or curbs along the roadway. Lattice railings 18" in height are mounted on the trusses 12" above

the roadway. On the railing of the west span's south truss is a cast-iron plaque giving the bridge's date, the name of the contractor and fabricator, and the Selectmen of the Town of Coventry at the time it was built. It reads "1914 / THE UNITED / CONSTRUCTION CO. / CONTRACTORS / ALBANY N.Y. / AMERICAN BRIDGE CO. / BUILDERS / J. H. REYNOLDS / A. B. PORTER / F. W. CHASE / SELECTMEN."

The bridge's abutments are reinforced concrete, with a center pier built of fieldstone rubble; on the north (upstream) side, the pier is extended a considerable distance to form a stepped and pointed cutwater.

The present state of the bridge reflects a major rehabilitation undertaken in 1981. That project replaced about two-thirds of the lower-chord channels as well as all of the floor beams and cross-bracing. At the southeast corner of the east span, automobile damage to the end post was repaired by welding on a new top plate. Nearly all of the lower ends of the vertical members were cut off and replaced with welded-on extensions, and the lower joints were rebuilt with new gusset plates and high-strength bolts. Although this work introduced new material, it did not substantially alter the original design or appearance of the bridge, since it was largely a matter of replacement-in-kind.

The name of the structure, Perkins Corner Bridge, appears in Coventry town records of the period and in early state inspection reports. It refers to a cluster of houses located a short distance to the east on the Mansfield side. The bridge is also locally referred to by the names of the roads, Flanders Road Bridge in Coventry and Cider Mill Road Bridge by Mansfield residents.

Technological Significance

In its material, type of truss, and the use of riveted connections, the Perkins Corner Bridge typifies the standardization of truss design that characterized bridge engineering in the early 20th century. Wrought iron had been a common material for the structural members of bridges as late as the 1890s, but by the time the Perkins Corner Bridge was built, 1914, steel was used exclusively. The numerous truss patterns that had characterized the late 19th century, including many that were proprietary designs of particular fabricators, had been largely reduced to just two types, the

Pratt and Warren trusses (and their variants). In fact, pony highway trusses of a length similar to the Perkins Corner Bridge almost invariably employed the Warren truss; it was especially economical of the amount of steel if, as in this bridge, the load requirements did not call for additional vertical members subdividing the panels. Finally, the earlier practice of connecting the truss members with large pins had been abandoned in favor of riveted connections for all but the longest bridges. With riveted connections, the use of gusset plates at the joints greatly simplified the fabrication of the various members, and the greater rigidity of riveted bridges added to their appeal. Small trusses such as this were often partially assembled in the shop using rivets, with final erection using bolts and nuts, thereby avoiding field riveting.

Historical Background

This bridge was one of a number of steel-truss bridges purchased by Coventry and Mansfield in the early years of the 20th century, as they gradually replaced the wooden bridges that had previously served the rural countryside. The year before the Perkins Corner Bridge was built, for example, the towns had cooperated on rebuilding two other bridges over the Willimantic River, and Coventry and the town of Columbia had replaced one of the bridges over the Hop River.

The bridge at Perkins Corner was not particularly heavily traveled, nor was it on a direct route between village centers. Rather, it was simply one of several crossings of the Willimantic River that served the farming families in its immediately surrounding area. Although built when automobiles and trucks were beginning to come into common use, the bridge's relatively light members and one-lane width indicate its origins before heavy motor-vehicle traffic became a prime concern. The bridge cost $1,050.00, with additional sums paid for plank for the original wooden deck and for local labor.

In choosing the United Construction Company's services, the Coventry selectmen (who took the lead in replacing the bridge) followed the usual practice of local highway officials of the time: purchasing bridges from suppliers with whom they had well-established relations. Town records indicate that Coventry had bought three other bridges from United Construction just within the previous two years.

The United Construction Company, located in Albany, New York, was one of the region's foremost suppliers of small highway trusses. According to city directory listings, the company was active from about 1902 to 1928 and offered a general line of construction services; its long-time president was James R. Watt, who also served several terms as Mayor of Albany. The bridges supplied by United Construction, to the knowledge of the author, were exclusively fabricated by the American Bridge Company. Moreover, American Bridge Company trusses in the period 1900-1915 in the Northeast appear to have been erected solely by the United Construction Company, leading one to the conclusion that there was a close relationship, perhaps a marketing agreement, linking the two companies.[1]

The American Bridge Company was formed in 1900, by the same interests that controlled the United States Steel Corporation, in an attempt to monopolize the nation's bridge-building industry. Within a few years of its founding, American Bridge had acquired 28 other bridge-building companies and could claim over half the structural-steel fabricating capacity of the country. The American Bridge Company represented both a horizontal near-monopoly in fabricating and further vertical integration for the already closely controlled steel industry. American Bridge was organized as a wholly owned subsidiary of U.S. Steel, and from 1904 on, had its headquarters in Pittsburgh, Pennsylvania.

Despite its size, the company never achieved complete control of the bridge market; in New England, for example, there were strong local competitors such as the Boston Bridge Works and the Berlin Construction Company. Nevertheless, American Bridge supplied a substantial portion of the steel trusses purchased by state and local highway officials in the early 20th century, and there can be no doubt that the company was the single most important fabricator of the period.[2]

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[1]These conclusions are based upon three statewide bridge surveys conducted by the author's firm: Vermont (1985), Rhode Island (1988), and Connecticut (1992).

[2]For example, 40 of the remaining 123 trusses (32%) erected in Vermont in the period 1900-1930 are known to have been fabricated by the American Bridge Company. The nearest competitor accounted for only 21 bridges.

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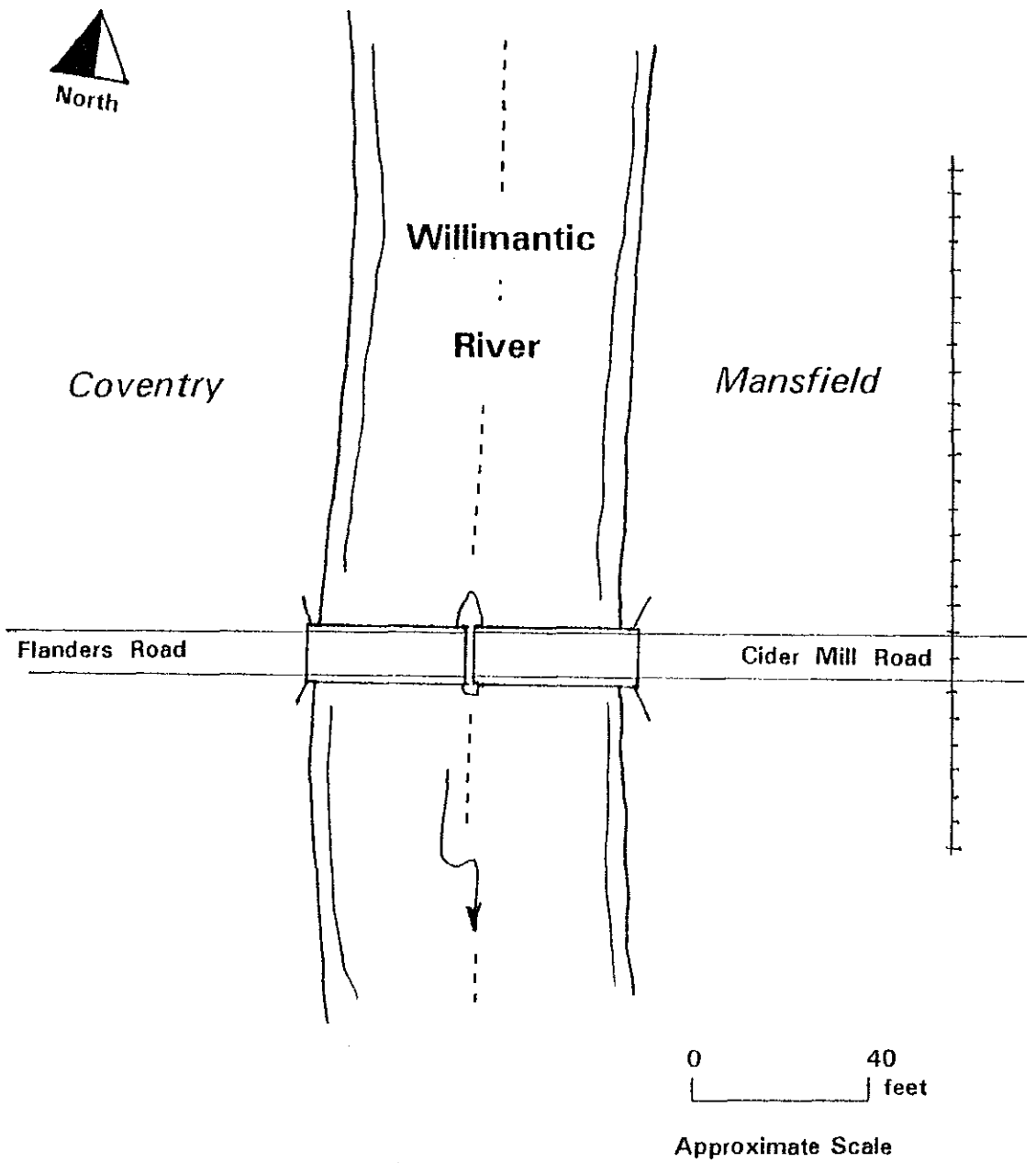
Note on historical photographs and plans: the records of the Connecticut Department of Transportation, the Mansfield Department of Public Works, and the Coventry Town Engineer all failed to yield original plans for the bridge, nor were there any historical photographs discovered in these repositories.


North
Willimantic
River
Coventry
Mansfield
Flanders Road
Cider Mill Road
0
40
feet
Approximate Scale

SKETCH PLAN